



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number: **0 585 943 A3**

EUROPEAN PATENT APPLICATION

(12)

(21) Application number: **93114153.5**

(51) Int. Cl.⁵: **C12N 15/12, C07K 13/00,
A61K 35/28, C07K 15/00**

(22) Date of filing: **03.09.93**

(30) Priority: **04.09.92 US 940605**

(43) Date of publication of application:
09.03.94 Bulletin 94/10

(84) Designated Contracting States:
**AT BE CH DE DK ES FR GB GR IE IT LI LU MC
NL PT SE**

(88) Date of deferred publication of the search report:
06.07.94 Bulletin 94/27

(71) Applicant: **Bristol-Myers Squibb Company
345 Park Avenue
New York, N.Y. 10154(US)**

(72) Inventor: **Aruffo, Alejandro
1012 Spruce Street
Edmonds, Washington 98020(US)
Inventor: Hollenbaugh, Diane
9612 12th Avenue N.W.
Seattle, WA 98117(US)
Inventor: Ledbetter, Jeffrey A.
306 N.W. 113th Place
Seattle, WA 98177(US)**

(74) Representative: **Kinzebach, Werner, Dr. et al
Patentanwälte
Reitstötter, Kinzebach und Partner
Postfach 86 06 49
D-81633 München (DE)**

(54) **Soluble ligands for CD40.**

(57) The present invention relates to soluble ligands for the B-cell antigen, CD40, and, in particular, to human gp39 protein and soluble ligands derived therefrom which may be used in methods of promoting B-cell proliferation.

EP 0 585 943 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 11 4153

DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
P,X	WO-A-93 08207 (IMMUNEX CORP.) 29 April 1993 * The application in its entirety, specifically Fig. 2 * ---	1-6, 9-11,14, 15, 20-23, 30,33,34
P,X	EP-A-0 555 880 (BRISTOL-MYERS SQUIBB COMP.) 18 August 1993 * The application in its entirety * ---	4,5,9, 10,14, 15, 21-25, 30,31, 33,34, 39,40,45
A	J. EXPER. MED. vol. 175, no. 4, 1 April 1992 pages 1091 - 1101 LEDERMAN S. ET AL. 'Identification of a novel surface protein on activated CD4+ T-cells that induces contact dependent B-cell differentiation' * Summary and Discussion * ---	4,5,9,10
D,A	NATURE vol. 357, no. 6373, 7 May 1992, LONDON pages 80 - 82 ARMITAGE R J ET AL. 'Molecular and biological characterisation of a murine ligand for CD40' ---	
P,X	EMBO JOURNAL vol. 11, no. 12, December 1992, ENGLAND pages 4313 - 4321 HOLLENBAUGH D. ET AL. 'The human T cell antigen gp39...' --- -/--	1-46
The present search report has been drawn up for all claims		
Place of search	Date of completion of the search	Examiner
MUNICH	28 April 1994	Germinario, C
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons & : member of the same patent family, corresponding document		

EPO FORM 1501 (04/93) (P04C01)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 11 4153

DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
A	CURRENT OPINION IMMUNOLOGY vol. 4, no. 3, June 1992, ENGLAND pages 333 - 337 NOELLE R ET AL. 'T helper cells' -----	
		CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
		TECHNICAL FIELDS SEARCHED (Int.Cl.5)
The present search report has been drawn up for all claims		
Place of search	Date of completion of the search	Examiner
MUNICH	28 April 1994	Germinario, C
CATEGORY OF CITED DOCUMENTS		
<p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document</p>		

EPO FORM 150 (01.92) (P01001)